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09/628,366	07/31/2000	Chandra S. Chekuri	3-5-13-12-5	4170

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EXAMINER	
TON, ANTHONY T	

ART UNIT	PAPER NUMBER
2661	8

DATE MAILED: 06/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/628,366	CHEKURI ET AL.	
	Examiner	Art Unit	
	Anthony T Ton	2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 October 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skilled in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 1-4, 7-9 and 12-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Clark et al.** (US Patent No. **6,023,459**).

a) **In Regarding to Claim 1**: **Clark et al. disclosed** a processor-implemented method for providing a desired level of performance of wireless network, the method comprising the steps of:

applying an optimization process to a set of information characterizing the network, the optimization process comprising a multi-stage process *(see Figs.11 and 12)* including at least a frequency assignment stage *(see Fig.11 blocks 910 and 905)* and a post-frequency-assignment optimization stage *(see Fig.11 block 911)*, and wherein at least a subset of the stages of the multi-stage process are iterated *(see Fig.11 feed backs from block 911 to blocks 909 and 905; and see Fig.10: a feedback from block 1007 to block 1004; and see col.15 lines 9-12)*; and

utilizing an output of the optimization process to determine at least one operating parameter of the wireless network *(see Fig.9: block 912 To BSC (wireless); Figs.10: block 1008; and see Fig11 output block: 902,903,912).*

Clark et al. failed to explicitly disclose a post-frequency-assignment optimization stage being applied after assignment frequencies to one or more communication channels of the wireless network in the frequency assignment stage. However, **Clark et al. disclosed** an

evaluate frequency plan data that is equivalent to the claimed subject matter of the instant claim. *(see Fig.10: step1007 recited after step 1006 – frequency plan data).*

Therefore, it would have been obvious to one of ordinary skilled in the art can employ such a post-frequency-assignment optimization stage being applied after assignment frequencies to one or more communication channels of the wireless network in the frequency assignment stage throughout the evaluation frequency plan of Clark et al, as taught by the applicant, so that frequency assignments can be optimized more effectively, **the motivation being** to make the frequency assignment in wireless networks of Clark et al more efficiently.

b) **In Regarding to Claim 2**: **Clark et al. further disclosed** the optimization process further comprises a three-stage optimization process having a pre-frequency-assignment optimization stage, the frequency assignment stage and the post-frequency assignment optimization stage *(see fig.10: step 1004 (Stage 1, pre-frequency-assignment optimization stage), steps 1005 and 1006 (Stage 2, frequency assignment stage), and step 1007 (Stage 3, the post-frequency assignment optimization stage)).*

c) **In Regarding to Claim 3**: **Clark et al. further disclosed** wherein at least a subset of the three stages of the three-stage optimization process are repeated in an iterative manner *(see Fig.10: step 1007 is fed back to step 1004).*

d) **In Regarding to Claim 4**: **Clark et al. further disclosed** wherein the frequency assignment stage comprises a frequency planning stage *(see Fig.10 step 1006 (frequency plan data)).*

e) **In Regarding to Claim 7**: **Clark et al. further disclosed** wherein the optimization process utilizes a derivative-based optimization of a specified objective function *(see Fig.34: steps 3402-3411)*.

f) **In Regarding to Claim 8**: **Clark et al. further disclosed** wherein the operating parameter of the wireless network comprises at least one of a base station transmit power and an antenna orientation *(see col.20 lines 5-22 and col.28 lines 32-41)*.

g) **In Regarding to Claim 9**: **Clark et al. further disclosed** wherein the optimization process determines a network configuration for specified values of network capacity and network coverage *(see col.13 lines 1-19)*.

h) **In Regarding to Claim 12**: The claimed limitations disclosed in the claim 12 are the same as that in the Claim 1. Therefore, Clark et al. would apply the rejections in the claim 1 to claim 12 in an apparatus of a processor-based system as taught.

i) **In Regarding to Claim 13**: Clark et al. would apply the rejections in the claim 1 to claim 13 in an apparatus as taught.

j) **In Regarding to Claim 14**: The claimed limitations disclosed in the claim 14 are the same as that in the Claim 1. Therefore, Clark et al. would apply the rejections in the claim 1 to claim 14 in an article as taught.

3. **Claims 5 and 6** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Clark et al.** (US Patent No. **6,023,459**) in view of **Alamouti et al.** (US Patent No. **6,560,209**).

a) **In Regarding to Claim 5**: **Clark et al. disclosed** all aspects of this claim as set forth in Claim 1.

Clark et al. do not clearly teach wherein the wireless network that implements a frequency reuse factor greater than one (FRF >1).

Alamouti et al. do teach such a FRF *(see col.4 lines 29-33).*

It would have been obvious to modify such a FRF of Clark et al. as taught by Alamouti et al. for improving the spectral efficiency in network performance, **the motivation being** to reduce the interferences of co-channels in communications systems and enhance reliability to the method of Clark et al.

b) **In Regarding to Claim 6**: **Clark et al. disclosed** all aspects of this claim as set forth in Claim 1.

Clark et al. do not clearly teach the wireless network comprises at least a CDMA wireless network, an OFDMA wireless network, and a TDD wireless network.

Alamouti et al do teach such wireless networks *(see Fig.1; col.2 lines 34-38 (CDMA);and col.5 lines 7-19 (TDD and OFDMA)).*

It would have been obvious to one of ordinary skilled in the art can employ such networks of Clark et al, as taught by Alamouti et al. so that cellular phones and personal communications systems can be operated in a plurality of protocols in wireless communications systems, **the motivation being** to provide both analog and digital communications to wireless users more efficiently.

4. **Claim 10 is** rejected under 35 U.S.C. 103(a) as being unpatentable over **Clark et al.** (US Patent No. **6,023,459**) in view of **Dufour et al.** (US Patent No. **6,049,717**).

Clark et al. disclosed all subject matters of this claim as set forth in Claim 1.

Clark et al. failed to explicitly disclose wherein the optimization process generates a graphical display in the form of tradeoff curve of capacity versus coverage. Clark et al. did not clearly disclose a tradeoff curve of capacity versus coverage. However, Clark et al disclosed Tables that are used to print out and lay out of data in frequency assignment plan for a communication network *(see Figs. 41a-41c and 42).*

Dufour et al do teach a graphic user interface of the frequency planning tool, in which, operator can view the results *(see col.11 line 19 – col.13 line 4; and col.21 line 35 – col.22 line 24).*

Therefore, **it would have been obvious** to one of ordinary skilled in the art can employ such a graphical display in the form of tradeoff curve of capacity versus coverage throughout the operation and management center apparatus as shown at block 800 in Fig.8 of Clark et al, as taught by Dufour et al so that a frequency assignment can be assigned to a mobile user more effectively, **the motivation being** to make the frequency assignment in wireless networks of Clark et al more efficiently.

5. **Claim 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Clark et al.** (US Patent No. **6,049,717**) in view of **Leung et al.** (US Patent No. **6,262,980**).

Clark et al. disclosed all aspects of this claim as set forth in Claim 1.

Clark et al. do not clearly teach a display in the form of a tradeoff curve of percent carrier-to-interface ratio above threshold versus coverage.

Leung et al do teach such a tradeoff curve *(see col.4 lines 14-21; col.6 lines 35-40; Figs. 8-10; and col.15 lines 11-48).*

It would have been obvious to one of ordinary skilled in the art can employ such a tradeoff curve of Clark et al, as taught by Leung et al. in order to provide a best quality signal that has been assigned to subscribers, **the motivation being** to make Clark et al more efficient.

Response to Arguments

6. Applicant's arguments with respect to **claims 1-14** have been considered but are moot in view of the new ground(s) of rejection.

Examiner Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony T Ton whose telephone number is 703-305-8956. The examiner can normally be reached on M-F: 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W Olms can be reached on 703-305-4703. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ATT
5/26/2004

Phirin Sam